WHAT IS CLAIMED IS:

1. A battery state diagnosing device for applying load to a battery, measuring input and output characteristics of the battery, and diagnosing a state of the battery by plugging a result of measurement into a mathematical expression obtained by a system identification method,

said battery state diagnosing device applying load to the battery using a current load.

2. The battery state diagnosing device as set forth in claim 1, wherein:

the measured output characteristic is a terminal voltage of the battery; and

when diagnosing the battery by system identification, an electromotive force component of a fluctuating terminal voltage of the battery is removed as a bias, and a slight voltage fluctuation after the electromotive force component has been removed is amplified and used for the diagnosis by the system identification.

3. The battery state diagnosing device as set forth in claim 1, wherein:

the measured output characteristic is a terminal voltage of the battery; and

when diagnosing the battery by system identification, a fluctuating terminal voltage of the battery is separated into a

perpendicular component which derives from a serial resistance of the battery, and a component representing CR dynamics;

the perpendicular component is removed from the terminal voltage; and

a slight voltage fluctuation after the perpendicular component has been removed is amplified and used for the diagnosis by the system identification.

4. The battery state diagnosing device as set forth in claim 3, wherein:

in order to remove the perpendicular component from the terminal voltage, a voltage value at a rise of a voltage pulse representing the electromotive force component of the battery is calculated from a voltage wave form of the terminal voltage, and the calculated value of the voltage pulse is subtracted from the terminal voltage.

5. A battery state diagnosing device for applying a current to a battery, measuring input and output characteristics of the battery, and diagnosing a state of the battery by plugging a result of measurement into a mathematical expression obtained by a system identification method,

the battery being a fuel cell that is not supplied with fuel, and

the battery being supplied with a current from a voltage source.

6. A battery state diagnosing device for applying load to a battery, measuring input and output characteristics of the battery, and diagnosing a state of the battery by plugging a result of measurement into a mathematical expression obtained by a system identification method, said battery state diagnosing device comprising:

a circuit section for constituting a closed circuit by serially connecting the battery to a current load when diagnosing the battery;

a measuring section, connected to the circuit section, for measuring a terminal voltage of the battery and a current flowing in the circuit section; and

a diagnosing section for diagnosing, by the system identification method, a state of the battery based on a result of measurement by the measuring section.

7. A battery state diagnosing device for applying a current to a battery, measuring input and output characteristics of the battery, and diagnosing a state of the battery by plugging a result of measurement into a mathematical expression obtained by a system identification method, the battery being a fuel cell that is not supplied with fuel,

said battery state diagnosing device comprising:

a circuit section for constituting a closed circuit by serially

connecting the battery to a voltage source when diagnosing the battery;

a measuring section, connected to the circuit section, for measuring a terminal voltage of the battery and a current flowing in the circuit section; and

a diagnosing section for diagnosing, by the system identification method, a state of the battery based on a result of measurement by the measuring section.

8. A battery state diagnosing method for applying load to a battery, measuring input and output characteristics of the battery, and diagnosing a state of the battery by plugging a result of measurement into a mathematical expression obtained by a system identification method,

said method measuring input and output characteristics of the battery by serially connecting the battery to a current load.

9. The battery state diagnosing method as set forth in claim 8, wherein:

the measured output characteristic is a terminal voltage of the battery; and

when diagnosing the battery by system identification, an electromotive force component of a fluctuating terminal voltage of the battery is removed as a bias, and a slight voltage fluctuation after the electromotive force component has been removed is

amplified and used for the diagnosis by the system identification.

10. The battery state diagnosing method as set forth in claim 8, wherein:

the measured output characteristic is a terminal voltage of the battery; and

when diagnosing the battery by system identification, a fluctuating terminal voltage of the battery is separated into a perpendicular component which derives from a serial resistance of the battery, and a component representing CR dynamics;

the perpendicular component is removed from the terminal voltage; and

a slight voltage fluctuation after the perpendicular component has been removed is amplified and used for the diagnosis by the system identification.

11. The battery state diagnosing method as set forth in claim 10, wherein:

in order to remove the perpendicular component from the terminal voltage, a voltage value at a rise of a voltage pulse representing the electromotive force component of the battery is calculated from a voltage wave form of the terminal voltage, and the calculated value of the voltage pulse is subtracted from the terminal voltage.

12. A battery state diagnosing method for applying a current to a battery, measuring input and output characteristics of the battery, and diagnosing a state of the battery by plugging a result of measurement into a mathematical expression obtained by a system identification method,

the battery being a fuel cell that is not supplied with fuel, and

said method measuring input and output characteristics of the battery by serially connecting the battery to a voltage source.